

Appl. No. 10/763,137
Amendment Dated September 26, 2006
Reply to Office Action of June 26, 2006

Attorney Docket No. 88519.0002
Customer No.: 26021
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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A semiconductor light emitting device comprising a light emission layer, consisting of a GaN system semiconductor, which is interposed between an n type GaN system semiconductor layer and a p type GaN system semiconductor layer, wherein there is provided a Ga-doped $Mg_zZn_{1-z}O$ ($0 \leq z < 1$) electrode film.

2. (Original) The semiconductor light emitting device according to claim 1, characterized in that associated with a quantity of doped Ga, with which the $Mg_zZn_{1-z}O$ ($0 \leq z < 1$) electrode film is doped, wherein a carrier concentration is $1 \times 10^{19} \text{ cm}^{-3}$ or more and $5 \times 10^{21} \text{ cm}^{-3}$ or less.

3. (Original) The semiconductor light emitting device according to claim 1, characterized in that there is provided a metal electrode, which supplies an electric current to either the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, and that said Ga-doped $Mg_zZn_{1-z}O$ ($0 \leq z < 1$) electrode film is formed between the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, and the metal electrode.

4. (Original) The semiconductor light emitting device according to claim 3, characterized in that associated with a quantity of, the doped Ga, with

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which the $Mg_zZn_{1-z}O$ ($0 \leq z < 1$) electrode film is doped, wherein a carrier concentration is $1 \times 10^{19} \text{ cm}^{-3}$ or more and less than $5 \times 10^{21} \text{ cm}^{-3}$.

5. (Previously Presented) The semiconductor light emitting device according to claim 1, characterized in that there is provided a metal electrode, which supplies an electric current to either the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, and that the metal electrode and the Ga-doped $Mg_zZn_{1-z}O$ ($0 \leq z < 1$) electrode film adjoin each other; and the metal electrode and the Ga-doped $Mg_zZn_{1-z}O$ ($0 \leq z < 1$) electrode film are arranged so as to be contiguous to the face of the n type GaN system semiconductor layer or the p type GaN system semiconductor layer.

6. (Original) The semiconductor light emitting device according to claim 5, characterized in that associated with a quantity of the doped Ga, with which the $Mg_zZn_{1-z}O$ ($0 \leq z < 1$) electrode is doped, wherein a carrier concentration is $1 \times 10^{19} \text{ cm}^{-3}$ or more and less than $5 \times 10^{21} \text{ cm}^{-3}$.

7. (Currently amended) A semiconductor light emitting device comprising a light emission layer, consisting of a GaN system semiconductor, which is interposed between a n type GaN system semiconductor layer and a p type GaN system semiconductor layer, wherein there is provided a B-doped $Mg_zZn_{1-z}O$ ($0 \leq z < 1$ $0 < z < 1$) electrode film disposed on one of the GaN system semiconductor layers.

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8. (Currently amended) The semiconductor light emitting device according to claim 7, A semiconductor light emitting device comprising a light emission layer, consisting of a GaN system semiconductor, which is interposed between a n type GaN system semiconductor layer and a p type GaN system semiconductor layer, wherein there is provided a B-doped Mg_zZn_{1-z}O (0≤z<1) electrode film disposed on one of the GaN system semiconductor layers:

characterized in that associated with a quantity of the doped B, with which the Mg_zZn_{1-z}O (0≤z<1) electrode is doped, wherein a carrier concentration is 1x10¹⁹cm⁻³ or more and less than 5x10²¹cm⁻³.

9. (Currently amended) The semiconductor light emitting device according to claim 7, characterized in that there is provided a metal electrode, which supplies an electric current to either the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, wherein said B-doped Mg_zZn_{1-z}O (0≤z<1) electrode film is formed between the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, and the metal electrode.

10. (Currently amended) The semiconductor light emitting device according to claim 9,

A semiconductor light emitting device comprising a light emission layer, consisting of a GaN system semiconductor, which is interposed between a n type GaN system semiconductor layer and a p type GaN system semiconductor layer, wherein there is provided a B-doped Mg_zZn_{1-z}O (0≤z<1) electrode film disposed on one of the GaN system semiconductor layers:

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characterized in that there is provided a metal electrode, which supplies an electric current to either the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, wherein said B-doped Mg_zZn_{1-z}O (0≤z<1) electrode film is formed between the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, and the metal electrode;

characterized in that associated with a quantity of the doped B, with which the Mg_zZn_{1-z}O (0≤z<1) electrode is doped, wherein a carrier concentration is 1x10¹⁹cm⁻³ or more and less than 5x10²¹cm⁻³.

11. (Currently amended) The semiconductor light emitting device according to claim 7, characterized in that there is provided a metal electrode, which supplies an electric current to either the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, wherein the metal electrode and the B-doped Mg_zZn_{1-z}O (0≤z<1 0<z<1) electrode film adjoin each other and the metal electrode and the B-doped Mg_zZn_{1-z}O (0≤z<1 0<z<1) electrode film are arranged so as to be contiguous to the face of the n type GaN system semiconductor layer or the p type GaN system semiconductor layer.

12. (Currently amended) The semiconductor light emitting device according to claim 11,

A semiconductor light emitting device comprising a light emission layer, consisting of a GaN system semiconductor, which is interposed between a n type GaN system semiconductor layer and a p type GaN system semiconductor layer,

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wherein there is provided a B-doped Mg_zZn_{1-z}O (0≤z≤1) electrode film disposed on one of the GaN system semiconductor layers;

characterized in that there is provided a metal electrode, which supplies an electric current to either the n type GaN system semiconductor layer or the p type GaN system semiconductor layer, wherein the metal electrode and the B-doped Mg_zZn_{1-z}O (0≤z≤1) electrode film adjoin each other and the metal electrode and the B-doped Mg_zZn_{1-z}O (0≤z≤1) electrode film are arranged so as to be contiguous to the face of the n type GaN system semiconductor layer or the p type GaN system semiconductor layer;

characterized in that associated with a quantity of the doped B, with which the Mg_zZn_{1-z}O (0≤z≤1) electrode is doped, wherein a carrier concentration is 1x10¹⁹cm⁻³ or more and less than 5x10²¹cm⁻³.